AKAI SERVICE MANUAL

SEMI AUTOMATIC TURNTABLE

MODEL AP-M 459

SPECIFICATION

Drive system	Belt drive
Motor	DC servo motor
Speed	33-1/3&45 rpm
Wow & flutter	0.07% (wrms)
Rumble (DIN B)	60dB
Tone arm	Static balance type
Effective arm length	215 mm
Stylus pressure adjustable range	1.4 ~ 2.0 g
Applicable cartridge weight	5.9g
Cartridge	VM type (PC-35, T4P plug-in type)
Output voltage	2.5 mV
Optimal stylus pressure	1.25 g
Channel balance	2 dB
Channel separation	20 dB (1 kHz)
Power requirements	DC 12V (center ⊖)

Dimensions	350 (W) × 92 (H) × 345 (D) mm (13.8 × 3.6 × 13.6 inchies)
Weight	2.6 kg (5.7 lbs)

Standard accessories

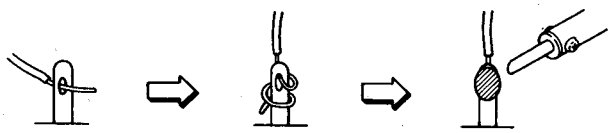
45 rpm adaptor	× 1
Screwdriver	× 1

* For improvement purposes, specifications and design are subject to change without notice.

★ SAFETY INSTRUCTIONS

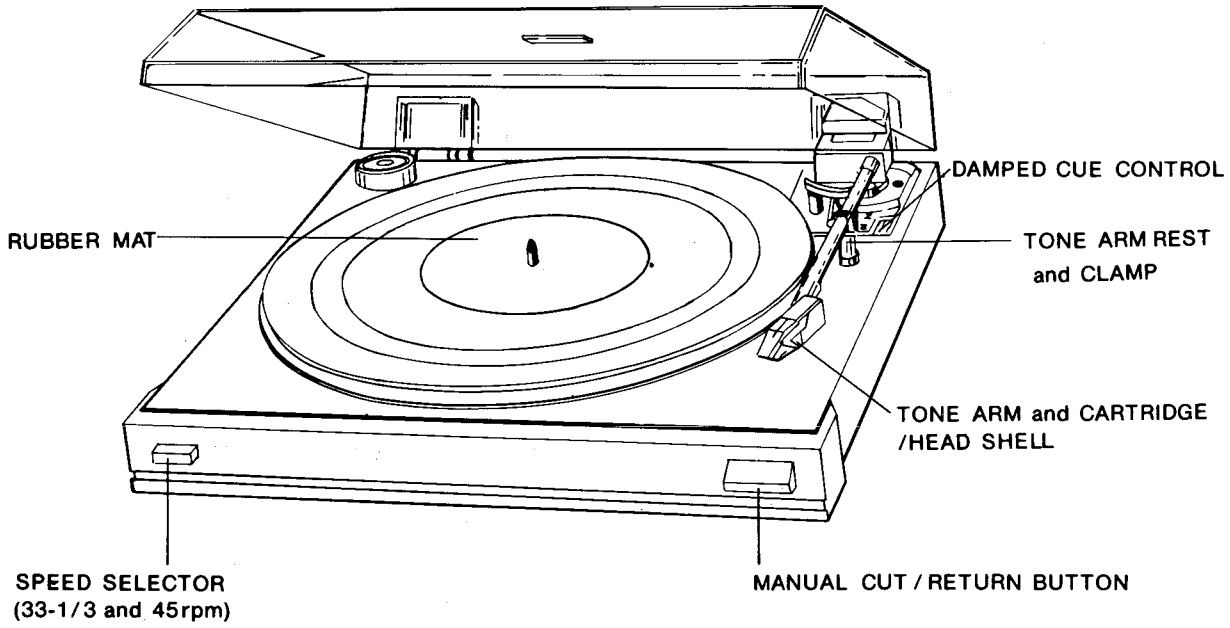
PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

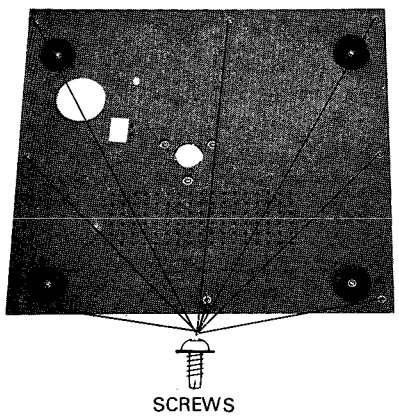
I. CONTROLS



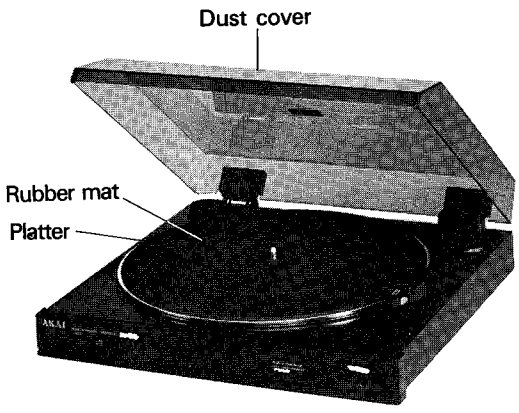
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order

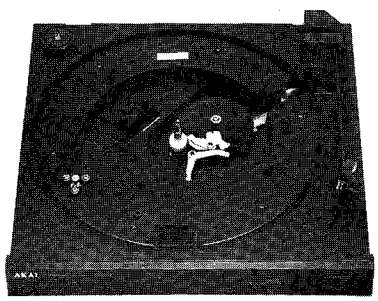
2



1



3



III. PRINCIPAL PARTS LOCATION

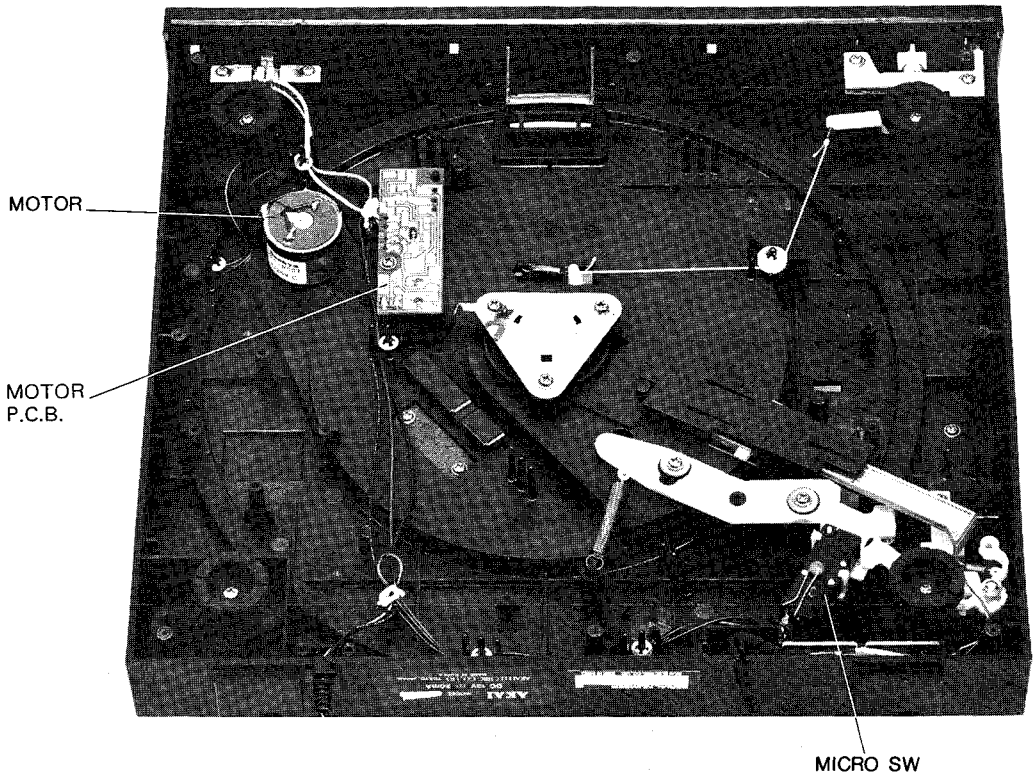


Fig. 3-1

IV. ADJUSTMENTS

4-1. AUTO RETURN ADJUSTMENT (Refer to Fig. 4-1)

(1) If the Tone Arm returns to early or does not return at all, Remove the Dust cover and adjust the auto return point as follows.
(The location of auto return is within 54-64mm from the center spindle.)

(2) Adjust the Cam in the hole located at the right side of Tone Arm after locking Tone Arm to the ARM REST.
   a) Counter clockwise: Auto return point to the out side of record.
   b) Clockwise: Auto return point to the center of record.

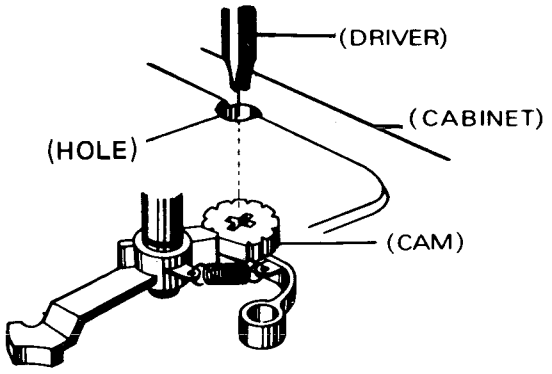


Fig. 4-1

4-2. STYLUS PRESURE ADJUSTMENT (Refer to Fig. 4-2)

Turn the screw which is located in the slot as shown in Fig. 4-2.
   a) Counter clockwise: Increase stylus pressure.
   b) Clockwise: Decrease stylus pressure.

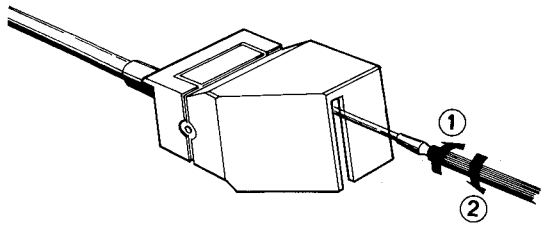


Fig. 4-2

4-3. SPEED ADJUSTMENT (Refer to Fig. 4-3)

NOTE: This speed adjustment should be adjust 33-1/3 rpm position first then adjust 45 rpm next.

(1) Connect the Frequency counter via Amplifier.
(2) Set the speed selector to 33-1/3 rpm.
(3) Play back the test record (1000 Hz 33-1/3 rpm), and adjust VR1 so that the reading on the Frequency counter is 1000Hz.
(4) Set the speed selector to 45 rpm.
(5) Play back the test record (1000Hz 45 rpm), and adjust VR2 so that the reading on the Frequency counter is 1000Hz.

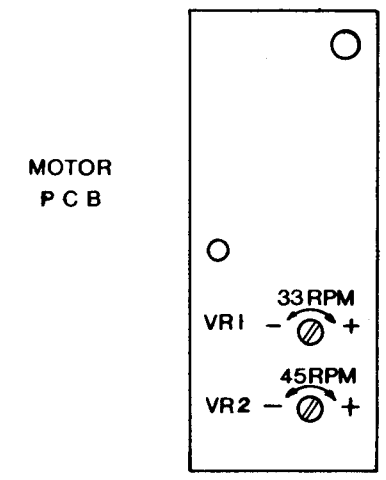


Fig. 4-3 View from Bottom side

MEMO

V. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

- SP (Service Parts) Classification
- A small "x" indicates that this part is not shown in the Photo or Illustration.
- This number corresponds with the individual parts index number in that figure.
- This number corresponds with the Figure Number.

b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

- Symbols for primary destination
  [A]: AAL(U.S.A.) [S]: SAA(Australia)
  [B]: BEAB(England) [U]: U/T(Universal Area)
  [C]: CSA(Canada) [V]: VDE(W. Germany)
  [E]: CEE(Europe) [Y]: Custom Version
  [J]: JPN(Japan)
- SP (Service Parts) Classification
- These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1. RECOMMENDED SPARE PARTS

Ref. No.	Part No.	Description
1	BC-726395K	DUCT COVER ASSY AP-M459
2	BM-718340	MOTOR BLK AP-M300
3	EI-720069	IC LA5515
4	*ES-724456K	SW MICRO AH4700
5	ES-724427K	SW PUSH SUF12
6	EW-718348	CORD PHONO AP-M300
7	EW-723037K	CORD POWER DC
8	MB-718346	BELT CR-WRT AP-M300
9	ML-723027K	ARM ACTUATER
10	ML-723010K	ARM CONTROL
11	MZ-722995K	GEAR RING
12	TP-720067	FEED ARM ASSY AP-M512-CB
13	TP-720064	MAIN GEAR BLK AP-M512-CB
14	TP-720075	SPINDLE SHAFT ASSY
15	TP-723030K	TABLE SHEET
16	TP-718342	TONE ARM ASSY AP-M300

2. FINAL ASSEMBLY BLOCK

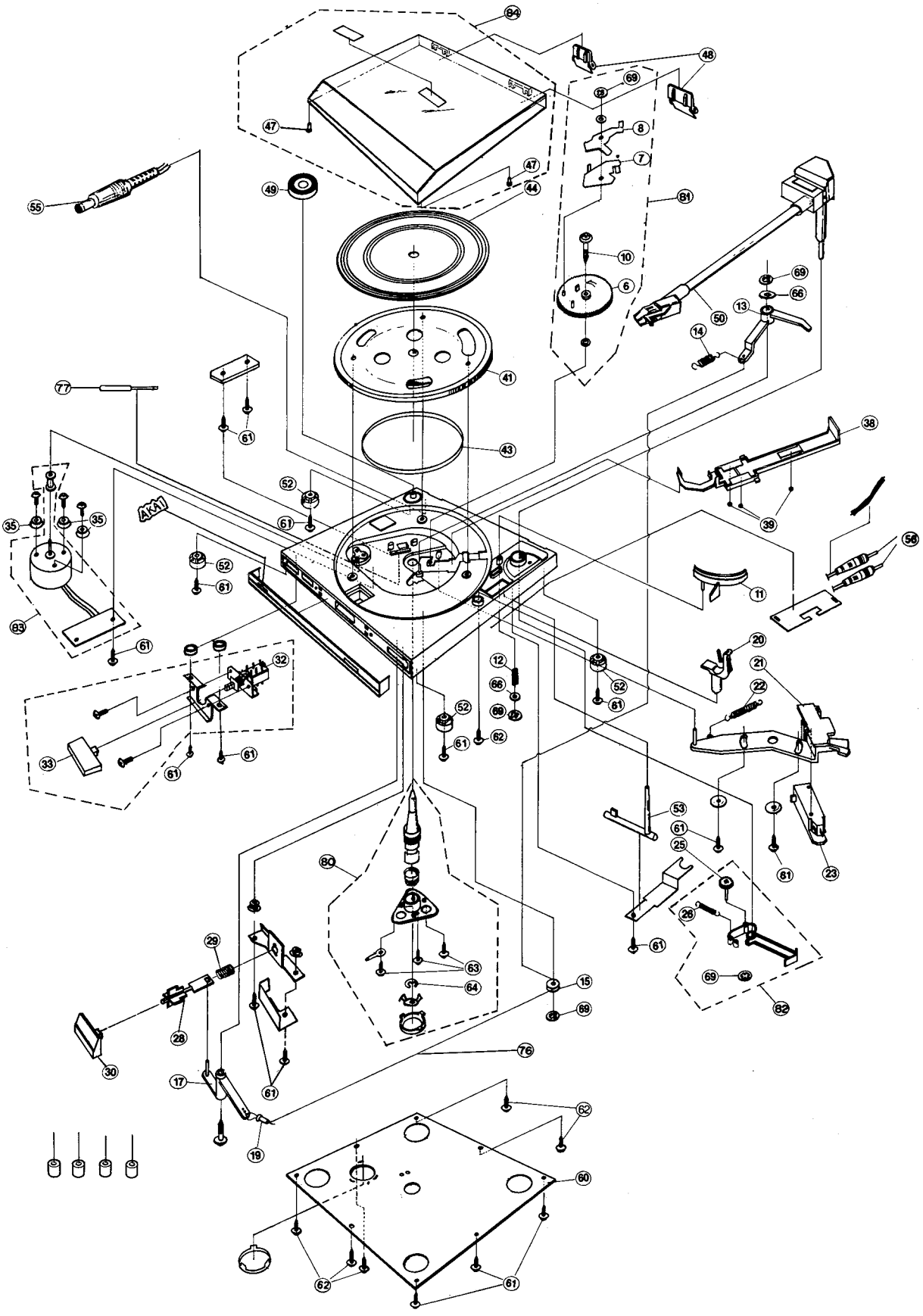
Ref. No.	Part No.	Description
6	MZ-722995K	GEAR RING
7	MZ-722996K	CLUTCH GUIDE
8	MZ-722997K	CLUTCH PLATE
10	MS-722999K	SHAFT RING GEAR
11	TP-720061	ARM ELEVATION
12	ZG-723000K	SP ELEVEATION
13	ML-724429K	LEVER CLUTCH
14	ZG-723002K	SP CLUTCH
15	MR-723004K	ROLLER
17	ML-723006K	LEVER REJECT
19	MZ-723008K	EYELET
20	TP-720065	ARM REST ASSY AP-M512-CB
21	ML-723010K	ARM CONTROL
22	ZG-723011K	SP CONTROL ARM
23	*ES-724456K	SW MICRO AH4700
25	MZ-723013K	CAM FEED ARM
26	ZG-726391K	SP FEEDER ARM
28	SZ-726393K	HOLDER KNOB REJECT
29	ZG-723018K	SP RETERN
30	SK-726392K	KNOB REJECT
32	ES-724427K	SW PUSH SUF12
33	SK-723021K	KNOB PUSH
35	SZ-723023K	CUSHION MOTOR
38	ML-723027K	ARM ACTUATER
39	MV-249074	BALL D4
41	TP-723028K	PLATTER
43	MB-718346	BELT CR-WRT AP-M300
44	TP-723030K	TABLE SHEET
47	SZ-723031K	CUSHION DUST COVER
48	TP-718347	HINGE BLK HT-506B AP-M300
49	AX-723032K	ADAPTOR 45RPM
50	TP-718342	TONE ARM ASSY AP-M300
52	TP-720062	FOOT
53	SK-726390K	HANDLE LIFTER AP-M459
55	EW-723037K	CORD POWER DC
56	EW-718348	CORD PHONO AP-M300
60	SC-723042K	COVER BOTTOM
61	ZS-724431K	SCREW 3X8 MSWR
62	ZS-724433K	SCREW 3X12 MSWR
63	ZS-724434K	SCREW 3.5X8 MSWR
64	ZW-270123	RING E 400SUP CMT
66	ZW-209316	PW31X080X050STL BNI
69	ZW-724436K	WASHER CS3
76	MZ-723049K	STRING
77	BM-718340	MOTOR BLK AP-M300
80	TP-720075	SPINDLE SHAFT ASSY
81	TP-720064	MAIN GEAR BLK AP-M512-CB
82	TP-720067	FEED ARM ASSY AP-M512-CB
83	BM-718340	MOTOR BLK AP-M300
84	BC-726395K	DUCT COVER ASSY AP-M459

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

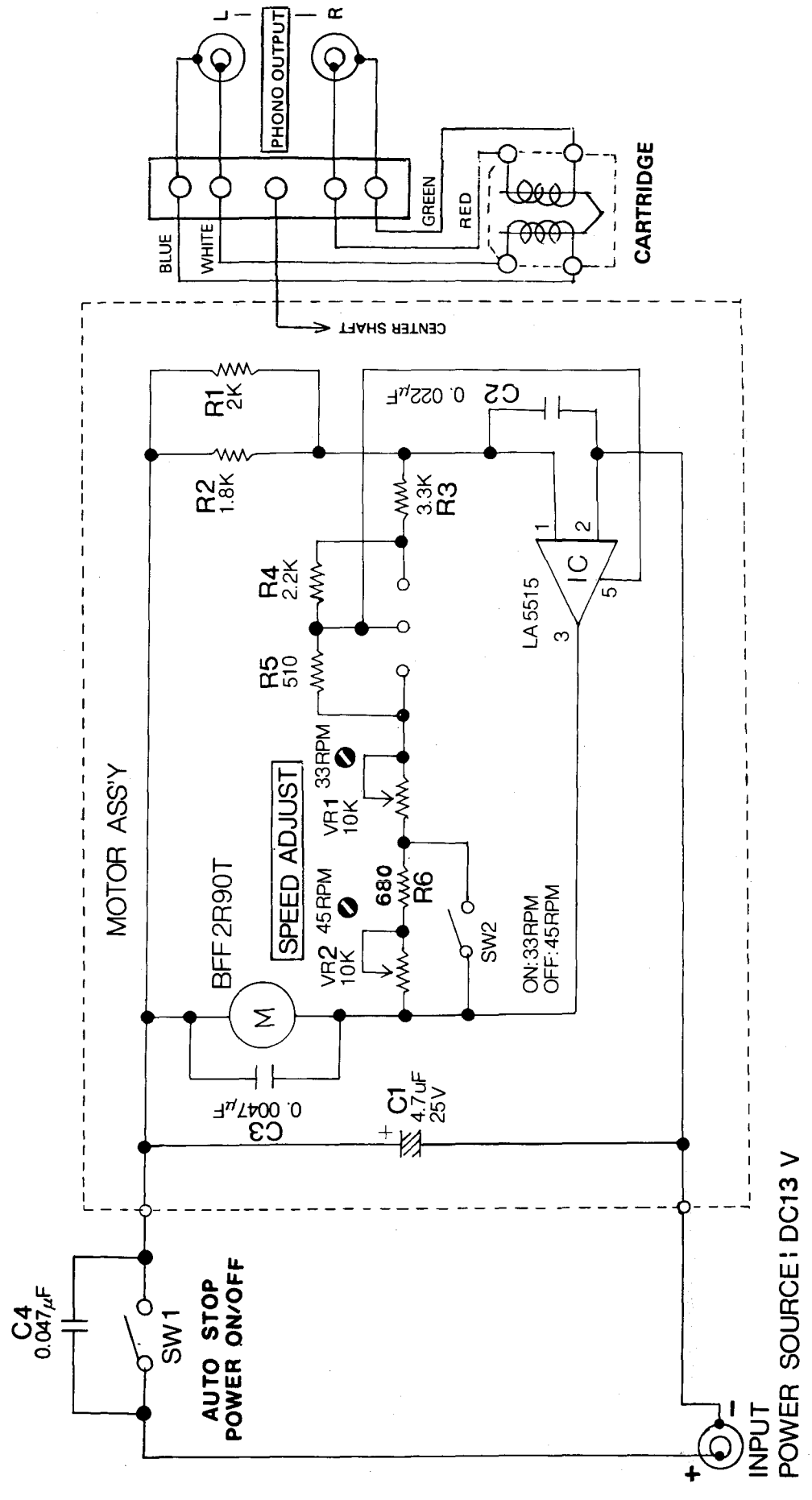
3. MOTOR P.C BOARD

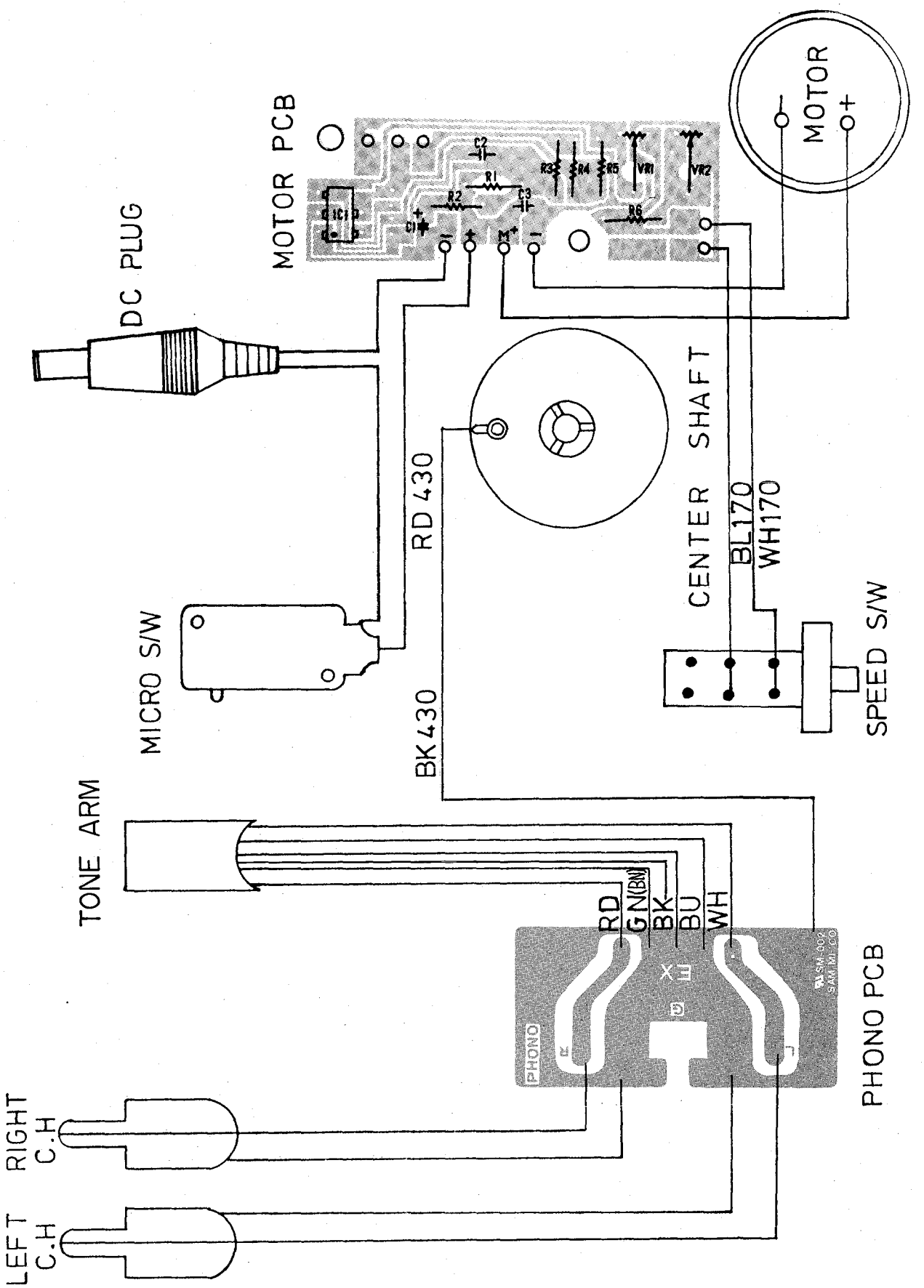
Ref. No.	Part No.	Description
IC1	EI-720069	IC LA5515
VR1	EV-336853	R S-FIX H KVSF807U 0.10W 103

FINAL ASSEMBLY BLOCK



VI. SCHEMATIC DIAGRAM




MOTOR
MOTOR PCB
C2
R1
R3
R4
R5
VR1
VR2
R2
C3
C1
IC1
R6
DC PLUG
CENTER SHAFT
RD430
BL170
WH170
MICRO S/W
SPEED S/W
BK430
TONE ARM
RD
GN(BN)
BK
BU
WH
PHONO
PHONO PCB
RIGHT C.H
LEFT C.H